

Claims

What is claimed is:

1. A method for distinguishing an individual, comprising the steps of  
acquiring image data of an individual;  
5 computing a gait parameter of the individual from the image data; and  
determining a match between the gait parameter of the individual and a particular  
gait parameter in a reference database to distinguish the individual.
2. The method of claim 1, wherein, in the step of acquiring, a video camera is  
10 utilized to obtain the image data of the individual.
3. The method of claim 1, wherein, in the step of computing, the gait parameter  
includes at least one of a head roll peak, a head roll range of motion, a trunk roll peak, a  
trunk pitch peak, a trunk yaw peak, a trunk roll range of motion, a trunk pitch range of  
15 motion, a trunk yaw range of motion, an arm-to-leg swing timing, an arm abduction  
angle, a foot rotation, a step length, a step width, a gait velocity, a cadence, and a heel  
strike-foot flat time.
4. The method of claim 1, wherein, in the step of computing, the image data is  
20 segmented, tracked, and sequenced.
5. The method of claim 1, wherein, in the step of computing, a three-dimensional  
model of the individual is constructed from polyhedra.

6. A system for distinguishing an individual comprising  
an image acquisition device for acquiring image data of an individual;  
an image data manipulation module for computing a gait parameter of the  
individual from the image data; and
- 5 a distinguishing module for determining a match between the gait parameter of  
the individual and a particular gait parameter in a reference database to distinguish the  
individual.
7. The system of claim 6, wherein the image acquisition device includes a video  
10 camera for obtaining the image data of the individual.
8. The system of claim 6, wherein the gait parameter includes at least one of a head  
roll peak, a head roll range of motion, a trunk roll peak, a trunk pitch peak, a trunk yaw  
peak, a trunk roll range of motion, a trunk pitch range of motion, a trunk yaw range of  
15 motion, an arm-to-leg swing timing, an arm abduction angle, a foot rotation, a step  
length, a step width, a gait velocity, a cadence, and a heel strike-foot flat time.
9. The system of claim 6, wherein the data manipulation module includes a data  
collection and pre-processing unit, an image segmentation and identification unit, and a  
20 segment tracking and sequencing unit.
10. The system of claim 6, wherein a match is determined if the gait parameter of the  
individual and the particular gait parameter in the reference database agree to within a  
particular tolerance.

11. A method for distinguishing an individual, comprising the steps of  
acquiring image data of an individual;  
computing an anatomy parameter of the individual from the image data; and  
determining a match between the anatomy parameter of the individual and a  
5 particular anatomy parameter in a reference database to distinguish the individual,  
wherein the anatomy parameter is selected from the group consisting of an arm length, a  
leg length, a torso length, a neck length, a head length, a shoulder-to-hip width ratio, a  
head-to-shoulder width ratio, a standing height, and a weight.
- 10 12. A method for distinguishing an individual, comprising the steps of  
acquiring image data of an individual;  
computing an anatomy parameter of the individual from the image data; and  
determining a match between the anatomy parameter of the individual and a  
particular anatomy parameter in a reference database to distinguish the individual,  
15 wherein the anatomy parameter is selected from the group consisting of an arm length, a  
leg length, a torso length, a neck length, a head length, a shoulder-to-hip width ratio, and  
a head-to-shoulder width ratio.
13. The method of claim 11, wherein, in the step of acquiring, a video camera is  
20 utilized to obtain the image data of the individual.
14. The method of claim 11, wherein, in the step of computing, the image data is  
segmented, tracked, and sequenced.

15. The method of claim 11, wherein, in the step of computing, a three-dimensional model of the individual is constructed from polyhedra.

16. A system for distinguishing an individual comprising

5 an image acquisition device for acquiring image data of an individual;

an image data manipulation module for computing an anatomy parameter of the individual from the image data; and

a distinguishing module for determining a match between the anatomy parameter of the individual and a particular anatomy parameter in a reference database to

10 distinguish the individual, wherein the anatomy parameter is selected from the group consisting of a arm length, a leg length, a torso length, a neck length, a head length, a shoulder-to-hip width ratio, a head-to-shoulder width ratio, a standing height, and a weight.

15 17. A system for distinguishing an individual comprising

an image acquisition device for acquiring image data of an individual;

an image data manipulation module for computing an anatomy parameter of the individual from the image data; and

20 a distinguishing module for determining a match between the anatomy parameter of the individual and a particular anatomy parameter in a reference database to

distinguish the individual, wherein the anatomy parameter is selected from the group consisting of a arm length, a leg length, a torso length, a neck length, a head length, a shoulder-to-hip width ratio, and a head-to-shoulder width ratio.

18. The system of claim 16, wherein the image acquisition device includes a video camera for obtaining the image data of the individual.

19. The system of claim 16, wherein the data manipulation module includes a data  
5 collection and pre-processing unit, an image segmentation and identification unit, and a segment tracking and sequencing unit.

20. The system of claim 16, wherein a match is determined if the anatomy parameter  
of the individual and the particular anatomy parameter in the reference database agree to  
10 within a particular tolerance.

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